



Charles A. Zdebski, Esquire  
September 2, 2015  
Page 4

**Pole Abandonments, Installations, Relocations And Replacements:  
Interrogatory Nos. 8, 9; Request Nos. 7, 17, 28**

FPL has not produced sufficient information to support its claims about pole abandonments, installations, relocations, and replacements.

In response to Interrogatory No. 9 and Request No. 17, FPL produced one unsigned notice of abandonment addressed to Verizon. It provided nothing about FPL's communications with Verizon's competitors about pole abandonments, nothing about the subsequent ownership of poles it abandoned, and nothing that quantifies how many poles FPL, in fact, abandoned.

In response to Interrogatory No. 8, FPL did not provide information about pole installations outside the parties' overlapping service areas, even though it represented that the "data [is] maintained in FPL's records." FPL must, therefore, produce the data, which is needed to evaluate FPL's claim that Verizon is the sole cause for the height of the poles that FPL has installed.

In response to Request No. 7, FPL did not produce any documents that show its coordination with Verizon regarding pole relocations, even though it claims to have saved Verizon time and resources by seeking and receiving input about relocations.

In response to Interrogatory No. 8 and Request No. 28, FPL did not provide relevant information about pole replacements, even though it has placed extraordinary value on alleged "benefits" associated with them. FPL's response to Interrogatory No. 8 is limited to the "number of poles installed in the counties served by the parties," which says nothing about how many of those installations replaced existing poles. And FPL's response to Request No. 28 is a chart of pole "retirements," not replacements, that was produced without any inputs or supporting documentation.

**Pole Capacity: Request No. 15**

In response to Request No. 15, FPL failed to produce any information showing that it has declined to expand capacity to accommodate attachers within the communications space on its poles. It instead produced two pole top evaluation forms, where the request to attach was denied because the "[p]roposed installation requires grounded cable to pass through the power supply space." And FPL

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improperly redacted information contained in the forms, which—if confidential—should have been produced pursuant to the parties' confidentiality agreement.

**Unauthorized Attachment Fees: Request No. 19**

In response to Request No. 19, FPL produced just two invoices. It did not produce any payment information showing that Verizon's competitors paid those invoices or any other invoices for unauthorized attachment fees. FPL also did not produce the "worksheet" referenced in the invoices as support for the "miscellaneous receivable unauthorized attachments" being billed.

**FPL's Relationship With Alpine Communications Corporation: Request No. 2**

In response to Request No. 2, FPL did not produce any current information about its relationship with its designated pole attachment contractor, which it relies upon to provide alleged "benefits" to Verizon's competitors. The only document FPL produced is a 1993 purchase order that includes a "completion, expiration, or delivery date" in February 1995.

**FPL's Negotiations With Verizon: Request Nos. 29-38**

In Response to Request Nos. 30, 31, and 33, FPL did not produce anything to support certain claims it made about the parties' negotiations, and in response to Request Nos. 29, 32, and 34-38, FPL produced a total of three email chains between the parties' attorneys. FPL failed to produce any internal documents or communications to substantiate its allegations about the negotiations, the positions FPL says were taken, or the frustration FPL purports to have felt.

**Documents Reviewed In Responding To Interrogatories: Request No. 39**

In response to Request No. 39, FPL did not produce any documents that it reviewed or consulted in responding to Verizon's discovery requests. FPL could not have, in good faith, responded to Verizon's discovery requests without consulting other documents. This is particularly true with respect to Verizon's interrogatories, which requested specific information about other entities attached to FPL's poles, rates charged and received, and poles installed, replaced, and abandoned by FPL.



Charles A. Zdebski, Esquire  
September 2, 2015  
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I look forward to hearing from you soon, to receiving FPL's supplemental production, and to participating in a productive and well-informed mediation based on a full and complete record.

Best regards,

A handwritten signature in blue ink, appearing to read "C. Huther", written over a light blue horizontal line.

Christopher S. Huther

cc: Maria J. Moncada, Esq. (by email)  
Alvin B. Davis, Esq. (by email)  
Robert J. Gastner, Esq. (by email)

PUBLIC VERSION



Eckert Seamans Cherin & Mellott, LLC  
1717 Pennsylvania Avenue, N.W.  
12<sup>th</sup> Floor  
Washington, D.C. 20006

TEL 202 659 6600  
FAX 202 659 6699  
www.eckertseamans.com

Charles A. Zdebski  
czdebski@eckertseamans.com  
(202) 659-6605 (direct dial)  
(202) 659-6699 (facsimile)

September 9, 2015

**VIA U.S. MAIL AND E-MAIL**

Christopher S. Huther, Esq.  
Wiley Rein LLP  
1776 K Street NW  
Washington, DC 20006  
Email: chuther@wileyrein.com

RE: *Verizon Florida, L.L.C. v. Florida Power & Light Company*; FCC Docket No. 15-73; File No. EB-15-MD-002

Dear Mr. Huther:

On behalf of Florida Power & Light Company ("FPL"), I am writing to respond to your August 21, 2015 letter sent on behalf of Verizon Florida, L.L.C. ("Verizon"). As an initial matter, FPL categorically rejects your assertion that "nearly every response-if not every response-fails to satisfy FPL's obligation to produce information and documents that are relevant to the material facts in dispute in this proceeding." FPL invested a great deal of time and effort to meet its discovery obligations and to provide Verizon with any requested discoverable information. Such hyperbole and unjustified rhetoric unfairly denigrates FPL's considerable efforts. FPL is more than willing to cooperate with Verizon to the extent that it has a reasonable request for additional clarification or information. However, the type of overheated language embodied in your letter is not indicative of a good-faith effort to seek a reasonable resolution to discovery concerns. With respect to your specific requests, FPL responds as follows.

**FPL's Pole Attachment Agreements: Request No. 1**

With respect to your request for copies of additional pole attachment agreements, FPL has already provided you with a representative sample of the agreements available to attaching cable providers and competitive local exchange carriers. The substance of these agreements is fairly uniform because FPL does not engage in the same type of extensive negotiations intended to meet the particularized needs of these attaching entities as it does with Verizon. Thus, the agreements provided should be more than sufficient for the Commission to evaluate whether Verizon is similarly situated to CLECs, cable companies or other attaching entities. It is simply unnecessary and unreasonable to demand that FPL produce every one of more than two dozen substantially similar agreements when FPL has produced a representative cross section. The FCC's rule does not require such an unreasonable production of every single agreement.

Moreover, as clearly indicated in FPL's response to Verizon Interrogatory No. 1, there are only four additional attaching entities within the FPL/Verizon shared territory. The other twenty attaching entities referenced in your letter are not located within the FPL/Verizon shared territory. Thus, any pole attachment agreements with these entities are not necessarily relevant to this proceeding. Nonetheless, to the extent that you have a specific request for a specific agreement based on a legitimate and articulable argument that such agreement is necessarily relevant to this case, please make such a request and the bases for it and FPL will consider producing the agreement.

With respect to your request for unredacted copies of FPL's pole attachment agreements, you have failed to articulate any prejudice that Verizon has experienced as a result of the minimal redactions contained in the produced agreements. Moreover, you have failed to provide one example of a redacted portion of an agreement that you assert would provide "highly relevant information about whether and to what extent the parties' Joint Use Agreement provides Verizon a net material advantage over its competitor." Given the nominal amount of redaction involved, it is hard to imagine how such information would be at all relevant to Verizon's case. If there is a specific redaction or set of redactions with which you are concerned, please provide additional information identifying the problem, and I would be more than willing to discuss the matter further with you.

**FPL's Value Quantifications: Interrogatory No. 3 and Request Nos. 4, 6, 8, 9, 10, 11, 18, 20**

In response to your requests regarding Interrogatory No. 3 and Request Nos. 4, 6, 8, 9, 10, 11, & 20, FPL reiterates its previous objections and responses to the extent that it is not in possession of the requested information or documentation in a form that is responsive to Verizon's requests. In addition, FPL has no obligation to create documents in order to respond to Verizon's requests.

Nonetheless, FPL has reexamined its files and is providing reasonably available additional information and documentation with this correspondence. This includes the enclosed spreadsheet, which is responsive to Interrogatory Number 3. Between FPL's original responses and its current supplementation, FPL has provided Verizon with documentation that is more than sufficient to respond to Verizon's requests and support FPL's position in this proceeding.

With respect to Request No. 18, FPL will be withdrawing the arguments in its Response regarding bonding costs (*See* Response pp. 21–22). Therefore, this request is no longer relevant to this proceeding, and FPL will not be providing any additional supplementation.

Verizon should keep in mind, as it reviews the additional documentation and information that FPL has worked to provide, that FPL has had no reason to collect information in the normal course of business in a manner that would be responsive to many of Verizon's discovery requests. For example, with respect to Verizon's request for "all documents concerning the estimated figures for 'the bare cost of installing a pole today'" (Request No. 4). FPL has not yet

produced such documentation because FPL almost always installs both bare poles and equipment supporting its own infrastructure at the same time. FPL has had no business reason to contemporaneously document the installation cost of just a bare pole for each pole it installs. As a pole owner itself, Verizon should be well aware of this fact—which begs the question of why it is repeatedly demanding the production of documentation that it either knows—or at very least should know—is not readily available. You have not provided any justification whatsoever for your attempt to require FPL to create new documentation responsive to these requests—an obligation that goes far beyond that which is required of FPL. Nevertheless, FPL is working to provide appropriate documentation in response to Request No. 4 so that the bases for its cost figures are abundantly clear.

Please also note that FPL timely provided objections on July 16<sup>th</sup> to Verizon's discovery requests, identifying the problems with the language and scope of each of these requests. However, Verizon made no attempt to reach out to FPL, as FPL did with Verizon's discovery objections, to revise and focus its requests to limit them to a reasonable universe of relevant information prior to FPL's production of its substantive responses. FPL produced discovery on July 28, 2015 but did not hear anything from Verizon until August 21, 2015— five weeks after FPL served objections and nearly one month after FPL served responses. During that delay, Verizon did not even bother to notify FPL of its alleged concerns. Thus, any suggestion that the parties' mediation could be "adversely" affected is patently unreasonable and would likely be viewed by the Commission as nothing more than the gamesmanship which it is.

FPL is continuing to review its files and may be able to produce additional supplementation in the next few days in response to your September 2, 2015 correspondence. However, FPL notes that Verizon has made no attempt as of this date to limit or revise its requests to address FPL's valid objections. Your most recent correspondence simply reiterates the exact same flawed discovery requests to which FPL already objected and utterly fails to address any of the issues raised by FPL. As demonstrated by the enclosed supplementation, FPL remains willing to cooperate with Verizon to address any additional reasonable concerns that it may have and expects Verizon to do the same. Please feel free to contact me to discuss this matter further at your earliest convenience.

Sincerely,

/s/

Charles A. Zdebski

cc: Maria J. Moncada., Esq.  
Alvin B. Davis, Esq.  
Robert J. Gastner, Esq.

Enclosures

## **Reply Exhibit 9**

**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 11963  
DATE 06/08/2006  
DUE DATE 06/08/2006  
TERMS Due on receipt

SHIP DATE  
06/08/2006

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b> Permit Administrative Fee # [REDACTED] 06-010	30	7.95	238.50

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	238.50
BALANCE DUE	<b>\$0.00</b>



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 12944  
DATE 09/25/2007  
DUE DATE 09/25/2007  
TERMS Due on receipt

SHIP DATE  
09/25/2007

## DESCRIPTION

QTY

RATE

AMOUNT

<b>5000</b>	10	7.95	79.50
Permit Administrative Fee # 07-006			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

79.50  
\$0.00



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13245  
DATE 12/07/2007  
DUE DATE 12/07/2007  
TERMS Due on receipt

SHIP DATE  
12/07/2007

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b> Permit Administrative Fee # [REDACTED] 07-016	23	7.95	182.85

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

182.85  
**\$0.00**



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13247  
DATE 12/07/2007  
DUE DATE 12/07/2007  
TERMS Due on receipt

SHIP DATE  
12/07/2007

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	8	7.95	63.60
Permit Administrative Fee [REDACTED] 07-003			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	63.60
BALANCE DUE	<b>\$0.00</b>



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13266  
DATE 12/10/2007  
DUE DATE 12/10/2007  
TERMS Due on receipt

SHIP DATE  
12/10/2007

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	750	7.95	5,962.50
Permit Administrative Fee # [REDACTED] 07-041			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	5,962.50
BALANCE DUE	<b>\$0.00</b>



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13354  
DATE 01/15/2008  
DUE DATE 01/15/2008  
TERMS Due on receipt

SHIP DATE  
01/15/2008

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b> Permit Administrative Fee # [REDACTED] 08-001	216	7.95	1,717.20

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	1,717.20
BALANCE DUE	<b>\$0.00</b>



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13616  
DATE 03/04/2008  
DUE DATE 03/04/2008  
TERMS Due on receipt

SHIP DATE  
03/04/2008

## DESCRIPTION

QTY

RATE

AMOUNT

<b>5000</b>	9	7.95	71.55
Permit Administrative Fee # [REDACTED] 08-003			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

71.55  
\$0.00



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13629  
DATE 03/06/2008  
DUE DATE 03/06/2008  
TERMS Due on receipt

SHIP DATE  
03/06/2008

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b> Permit Administrative Fee # 08-019	7	7.95	55.65

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

55.65  
\$0.00



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13631  
DATE 03/06/2008  
DUE DATE 03/06/2008  
TERMS Due on receipt

SHIP DATE  
03/06/2008

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	3	7.95	23.85
Permit Administrative Fee # [REDACTED] 08-020			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	23.85
BALANCE DUE	<b>\$0.00</b>



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 13633  
DATE 03/06/2008  
DUE DATE 03/06/2008  
TERMS Due on receipt

SHIP DATE  
03/06/2008

## DESCRIPTION

QTY

RATE

AMOUNT

<b>5000</b>	3	7.95	23.85
Permit Administrative Fee # [REDACTED] 08-021			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

23.85  
\$0.00



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 14966  
DATE 03/31/2009  
DUE DATE 03/31/2009  
TERMS Due on receipt

SHIP DATE  
03/31/2009

## DESCRIPTION

QTY

RATE

AMOUNT

<b>5000</b>	21	7.95	166.95
Permit Administrative Fee # [REDACTED] 09-002			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

166.95  
**\$0.00**



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 15523  
DATE 07/27/2009  
DUE DATE 07/27/2009  
TERMS Due on receipt

SHIP DATE  
07/27/2009

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b> Permit Administrative Fee # [REDACTED] 09-224	4	7.95	31.80
<b>5000</b> Permit Administrative Fee # [REDACTED] 09-324	2	7.95	15.90
<b>5001</b> Permit Make Ready Engineering Fee [REDACTED] 09-324	2	108.00	216.00

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

263.70  
\$0.00





Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
  
(386)615-3316

PUBLIC VERSION

Invoice

DATE	INVOICE #
09/23/2010	16750
TERMS	DUE DATE
Due on receipt	09/23/2010

BILL TO

Work Order #	Project
10M015648	10-009

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 10-009	18	7.95	143.10
TOTAL			\$143.10

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT



Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
(386)615-3316

PUBLIC VERSION

Invoice

DATE	INVOICE #
08/11/2010	16772
TERMS	DUE DATE
Due on receipt	08/11/2010

BILL TO



P.O. Number  
10 012

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 10-012	15	7.95	119.25
TOTAL			\$119.25

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT



Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
  
(386)615-3316

PUBLIC VERSION

Invoice

DATE	INVOICE #
06/14/2011	17679
TERMS	DUE DATE
Due on receipt	06/14/2011

BILL TO

Work Order #	Project
11M023905	11-005

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 11-005 • CONST CARL ID - 162611 • JOB CODE - 0A028	17	7.95	135.15
TOTAL			\$135.15

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 17692  
DATE 06/17/2011  
DUE DATE 06/17/2011  
TERMS Due on receipt

PROJECT

■ 11-502

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	2	7.95	15.90
Permit Administrative Fee # ■ 11-502			
515 AZALEA RD			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	15.90
BALANCE DUE	<b>\$0.00</b>



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 17694  
DATE 06/17/2011  
DUE DATE 06/17/2011  
TERMS Due on receipt

PROJECT

11-503

## DESCRIPTION

QTY

RATE

AMOUNT

<b>5000</b>	13	7.95	103.35
Permit Administrative Fee # 11-503			
HILLSBORO AVE			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

103.35  
\$0.00



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 17698  
DATE 06/17/2011  
DUE DATE 06/17/2011  
TERMS Due on receipt

PROJECT

11-511

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	6	7.95	47.70
Permit Administrative Fee # 11-511			
3483 HABERT ST			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	47.70
BALANCE DUE	<b>\$0.00</b>



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

## BILL TO



PAID

INVOICE # 17702  
DATE 06/17/2011  
DUE DATE 06/17/2011  
TERMS Due on receipt

## PROJECT

11-521

## DESCRIPTION

## QTY

## RATE

## AMOUNT

<b>5000</b>			
Permit Administrative Fee 11-521	16	7.95	127.20
INDIANA AVE & NORTON AVE			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

127.20  
\$0.00



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 17736  
DATE 06/30/2011  
DUE DATE 07/30/2011  
TERMS Net 30

PROJECT

11-501

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	2	7.95	15.90
Permit Administrative Fee # 11-501			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

15.90  
**\$0.00**



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

PAID

INVOICE # 17737  
DATE 06/30/2011  
DUE DATE 06/30/2011  
TERMS Due on receipt

**PROJECT**

11-601

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	1	7.95	7.95
Permit Administrative Fee 11-601			
<b>5001</b>	1	108.00	108.00
Permit Make Ready Engineering Fee # 11-601			
5881 FERN RD			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

115.95  
**\$0.00**



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

BILL TO



PAID

INVOICE # 17747  
DATE 07/01/2011  
DUE DATE 07/01/2011  
TERMS Due on receipt

PROJECT

11-619

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	2	7.95	15.90
Permit Administrative Fee # 11-619			
<b>5001</b>	2	108.00	216.00
Permit Make Ready Engineering Fee # 11-619			
1791 LOGSDON ST			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT  
BALANCE DUE

231.90  
\$0.00



**Alpine Communication Corp**

PO Box 1209  
Winter Park, FL 32790  
(386)615-3316  
mitch@alpinecc.us



# INVOICE

## BILL TO



PAID

INVOICE # 18453  
DATE 12/28/2011  
DUE DATE 12/28/2011  
TERMS Due on receipt

## PROJECT

11-017

DESCRIPTION	QTY	RATE	AMOUNT
<b>5000</b>	3	7.95	23.85
Permit Administrative Fee 11-017			
21 S INDIANA AVE			

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

PAYMENT	23.85
BALANCE DUE	<b>\$0.00</b>





Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
  
(386)615-3316

PUBLIC VERSION

# Invoice

Date	Invoice #
03/21/2012	18817
Terms	Due Date
Due on receipt	03/21/2012

Bill To



Work Order #	Project
12M030209	12-002/102

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 12-002	5	7.95	39.75
• Permit Administrative Fee # 12-102	1	7.95	7.95
• Permit Make Ready Engineering Fee # 12-102	1	108.00	108.00
• BAYSHORE RD - MANATEE COUNTY			
• CARL # - 178055			
• CARL ID # - 177372			
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			
Total			\$155.70



Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice #
03/29/2012	18866
Terms	Due Date
Due on receipt	03/29/2012

Bill To



Work Order #	Project
12M031472	12-004/104

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 12-004	11	7.95	87.45
• Permit Administrative Fee # 12-104	3	7.95	23.85
• Permit Make Ready Engineering Fee 12-004	3	108.00	324.00
• CORTEZ RD - BRADENTON			
• CARL ID # - 190415			
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			
Total			\$435.30



Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice #
08/20/2012	19013
Terms	Due Date
Due on receipt	08/20/2012

Bill To



Work Order #	Project
12M031813	2-005/105

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 12-005	5	7.95	39.75
• Permit Administrative Fee # 12-105	1	7.95	7.95
• Permit Make Ready Engineering Fee # 12-105	1	108.00	108.00
• 302 MANATEE AVE E			
• CARL ID # 190415			
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			
Total			\$155.70



Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice #
11/19/2012	19579
Terms	Due Date
Due on receipt	11/19/2012

Bill To

Project	P.O. Number
12-073/173	4500416806

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 12-073	7	7.95	55.65
• Permit Administrative Fee # 12-173	1	7.95	7.95
• Permit Make Ready Engineering Fee # 12-173	1	108.00	108.00
• 1035 ALBEE FARM RD			
• SITE TA03XC153 - AT&T-7609			
• EDDY LOPEZ			
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			Total
			\$171.60



Alpine Communication Corp  
595 N Nova Rd Ste 208  
Ormond Beach, FL 32174  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice #
05/07/2013	20002
Terms	Due Date
Due on receipt	05/07/2013

Bill To

Project	P.O. Number
13-012	2000095733

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 13-012 • 1960 LANDING BLVD • SARASOTA COUNTY SCHOOL BOARD • EDDY LOPEZ	20	7.95	159.00
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			Total 159.00



Alpine Communication Corp  
PO Box 1209  
Winter Park, FL 32790  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice No.
12/09/2013	20417
Terms	Due Date
Due on receipt	12/09/2013

Bill To

Project

13-007

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 13-007 • 4110 MANATEE AVE W • CARL # - 228514	13	7.95	103.35
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			Total \$103.35



Alpine Communication Corp  
PO Box 1209  
Winter Park, FL 32790  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice No.
12/11/2013	20420
Terms	Due Date
Due on receipt	12/11/2013

Bill To



Project  
14-001/101

Description	Quantity	Rate	Amount
• Permit Administrative Fee # 14-001	10	7.95	79.50
• Permit Administrative Fee # 14-101	2	7.95	15.90
• Permit Make Ready Engineering Fee # 14-101	2	108.00	216.00
• 6033 26TH ST W			
• CARL # - 228515			
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			
Total			\$311.40



Alpine Communication Corp  
PO Box 1209  
Winter Park, FL 32790  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice No.
12/17/2013	20432
Terms	Due Date
Due on receipt	12/17/2013

Bill To



Project

14-003

Description	Quantity	Rate	Amount
• Permit Administrative Fee 14-003 • 716 6TH ST W • CARL # - 260203	7	7.95	55.65
PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT			Total \$55.65



Alpine Communication Corp  
PO Box 1209  
Winter Park, FL 32790  
  
(386)615-3316

PUBLIC VERSION

Invoice

Date	Invoice No.
12/26/2013	20482
Terms	Due Date
Due on receipt	12/26/2013

Bill To

Project	P.O. Number
14-008/108	2000095733

Description	Quantity	Rate	Amount
• Permit Administrative/Post Inspection Fee # 14-008	16	20.95	335.20
• Permit Administrative/Post Inspection Fee # 14-108	4	20.95	83.80
• Permit Make Ready Engineering Fee 14-108	4	115.00	460.00
• 5875 BAHIA VISTA ST			
• SINGLE FOC LATERAL			
• EDDY LOPEZ			
Total			\$879.00

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

## PUBLIC VERSION



Alpine Communication Corp  
 595 N Nova Rd Ste 208  
 Ormond Beach, FL 32174  
 (386)615-3316

**Invoice**

Date	Invoice No.
09/08/2014	20868
Terms	Due Date
Due on receipt	09/08/2014

**Bill To**

FPL Fibernet  
 Attn: Kathy Ochipa  
 P.O. Box 029950  
 Miami, FL 33102

Project	P.O. Number
85-14-321/421	2000095733

Description	Quantity	Rate	Amount
• Non-Make Ready Permit Fee #85-14-321	9	20.95	188.55
• Make Ready Permit Fee #85-14-421	1	135.95	135.95
• 1123 N TAMIAMI TR			
• BZ97-FTTS			
• NOEL REESE			
<b>Total</b>			<b>\$324.50</b>

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT

## **Reply Exhibit 10**



## **Alpine Communication Corp.**

595 N. Nova Rd Ste 208, Ormond Beach, FL 32174 - Ph 386-615-3316 Fax 386-615-3317

### **APPLICATION PROCESSING FEES**

(All Application Fees are non-refundable)  
(60 day life applies to all approved applications)

**Non-Make Ready Application** - \$20.95 per pole  
(New and Existing Attachments)

Includes:

\$7.95 per pole - administrative fee

\$13.00 per pole - post inspection fee

**Make Ready Application** - \$135.95 per pole  
(New and Existing Attachments)  
(For those poles requiring FPL Make Ready)

Includes:

\$7.95 per pole - administrative fee

\$115.00 per pole - engineering fee

\$13.00 per pole - post inspection fee

---

**Re-Inspection Fee** - \$13.00 per pole  
(For re-inspection of non-standard attachment locations or other required field visits.)

**Returned Application Fee** - \$7.95 per pole  
(Application does not meet minimum standards for processing)  
(\$50.00 min)

**Administrative Hourly Rate** - \$45.00 per hr  
Office administrative work requested that falls outside the basic permit processing

**Field Engineer Hourly Rate** - \$65.00 per hr  
Field visits requested that are not part of the post inspection process

## **Reply Exhibit 11**

## Confidential Exhibit

## **Reply Exhibit 12**

# Florida Power and Light Company

## Document Production No. 14

## Pole Line Design

### Lesson Objectives

At the end of this lesson, the student will be able to:

- Plan a pole line
- Select a pole, by class and height
- Specify the proper anchor and guy for a given pole
- Explain the importance of clearances and space allocation on the pole line

## Carrying Plant

1. Aerial Pole Lines
2. Underground Conduit Systems
3. Buried Trenches
4. Submarine Conduit Systems
5. Submarine Buried Trenches

## Pole Line Planning

"Out of Sight" Plant is most preferable:

- Better Protected from weather and the "Hazards of the World"
- Aesthetics

## Pole Locations

Considerations:

- The possibility of a future road widening project
- The need for expansion by other utilities
- Specific situations such as road, rail and power line crossings
- The safety and convenience of the craft person and the public
- The necessity and feasibility of tree trimming to meet Pole and Cabling needs

## Permit Requirements:

- Placing and maintaining poles on both public and private property
- Crossing Railroad Tracks
- Crossing over or under certain waterways

Coordinate with the area's Power Company, for the consideration of joint ownership and the needs of each company.

- Space to house necessary plant
- Clearances
- Bonding and grounding
- Storm loading requirements

## The Anatomy of a Pole

### Properties:

#### Class

The class of a pole indicates its strength. The strongest is a "1" and the least strong is a "10." The higher the number, the thinner (diameter) the pole.

### Characteristics of Poles by Class

Pole Class	Breaking Load (Lbs.) 2' from top	Longest Available Pole (Ft.)	Weight of Longest Pole (Lbs.) (see note below)
1	4500	125*	10850
2	3700	125*	9510
3	3000	110*	6610
4	2400	80*	3430
5	1900	70*	2400
6	1500	60	1620
7	1200	50	1040
8	(Not a standard Class)	(Not a standard Class)	(Not a standard Class)
9	740	30	340
10	370	25	210

**Note:** Weight is for the heaviest species (SP); the lightest species (WC) is 30-40% lighter.

\* The longest JP, LP or NP pole is 60 feet.

**Height**

The length of the entire pole (not its height from the ground after placement).

**Timber Species**

The type of tree the pole is made from:

WC	Western Red Cedar
WP	Ponderosa Pine
JP	Jack Pine
LP	Lodgepole Pine
NP	Red Pine
DF	Douglas Fir
SP	Southern Pine
WL	Western Larch

**Preservative treatment**

Chemical used to preserve the wood of the pole:

Code	Preservative Treatment	Species Used on
A	Creosote Pentachlorophenol	SP
C	Creosote*	SP
G	Pentachlorophenol in LP Gas (Cellon Process)	WP, LP, DF, SP
P	Pentachlorophenol in Petroleum	All
S	CHEMONITE® or Green salt	(Discontinued Code)
SB	Ammoniacal Copper Arsenite (ACA-CHEMONITE)	All
SC	Chromated Copper Arsenate (CCA) Type A	All
SK	CCA Type C	All

\* Furnished only on specific authorization of operating company.

## Pole Markings

<b>O - 85</b>	←	Plant Location and year of treatment i.e. Oldtown, 1995
<b>SPP</b>	←	Species and Preservative Treatment i.e. Southern Pine, Penta-Petroleum Solution
<b>5 - 35</b>	←	Pole size: Class - Length i.e. Class 5, 35 ft pole
<b>5 35</b>	←	An alternative way of denoting pole size

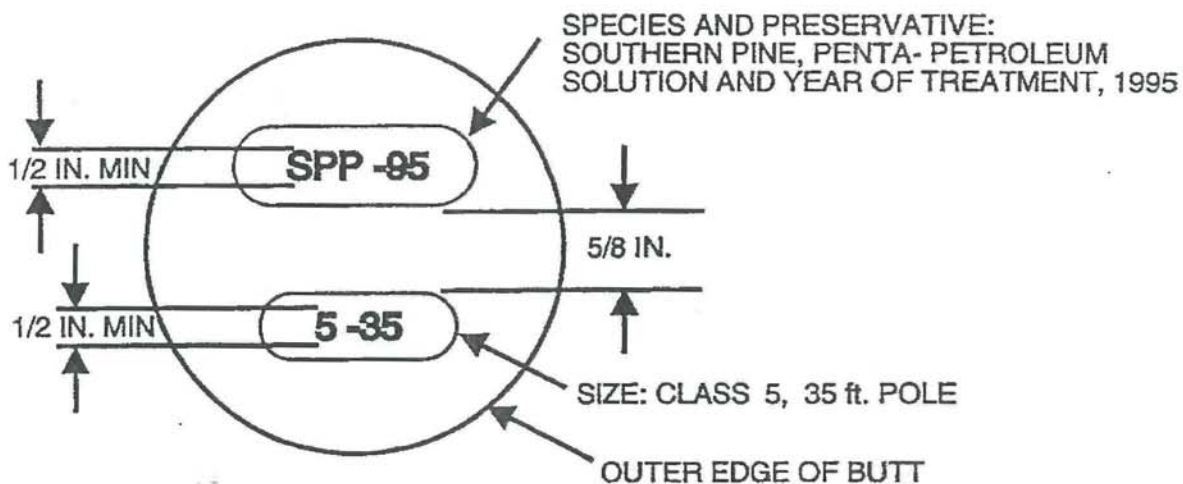
### Stencil Location:

10 feet from the pole butt

#### Exceptions:

- 10' stub, located 9 1/2' from butt
- 55' and longer (since 1964), located 14' from butt
- 80' and longer (1955 - 1964), located 15' from butt
- Poles purchased and placed by other companies

The following is the marking found on the end of the pole butt. This marking should be located, as shown (approximately), with respect to outer edge of butt



## Pole Line Design Considerations

### Pole Line Classification

Class of Line	Description	Design Stress For Transverse Storm Loading (% of Max. Strength)	
		At Installation	At Replacement
AA	Analog or digital carrier and any broadband technology	25	37.5
JB	Both communication circuits and power circuits of NESC Grade B construction	25	37.5
A	100-180 toll circuits or 1000-1800 exchange pairs. Priority II defense circuits	40	60
JC	Both communication circuits and power circuits of NESC Grade C construction	50**	75
B	Fewer than 100 toll circuits or 400-1000 exchange pairs. Priority III defense circuits	60	90
C	25-400 exchange pairs only	70	105
R	Fewer than 25 exchange pairs, one 6M or lesser stand, two multiple line wires, or one crossarm of open wire	80	120

**Notes:**

\*One toll circuit is equivalent to ten exchange pairs. For broadband circuits, 4 kHz is equivalent to one toll circuit, e.g., one 50-kHz circuit equals 12-1/2 toll circuits.

\*\*37.5 at railroad crossings.

## Three Types Of Loading

Loading, as it refers to pole line design, is the weight, or load, that the pole can support. Poles are subject to three types of loading:

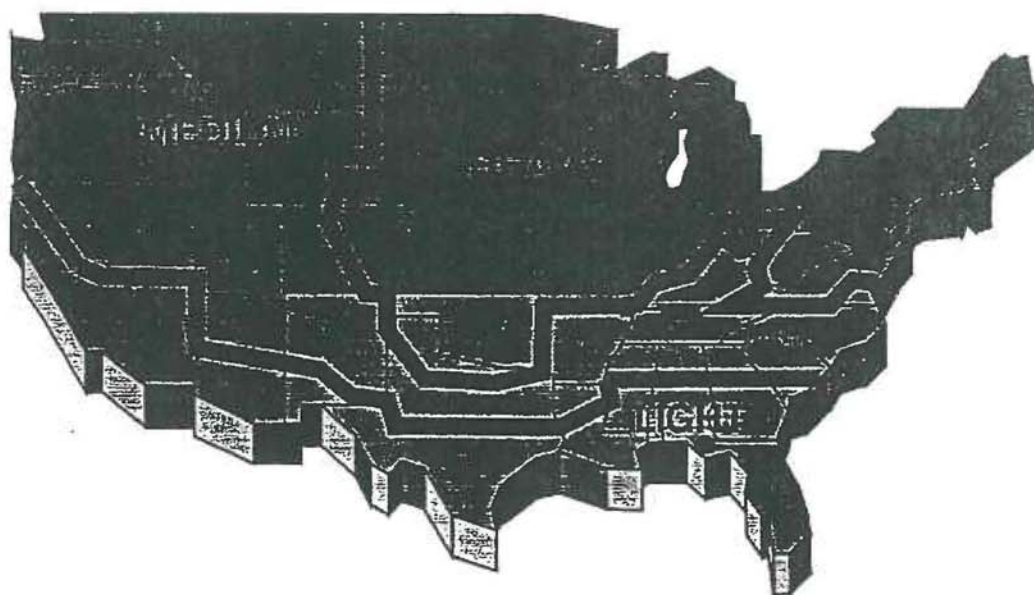
1. **Transverse storm loading** due to wind pressure on the attachments and on the above ground portion of the pole itself. (In heavy and medium storm loading areas, loading includes the wind force on the ice-coated attachments but not the ice-coating of the pole itself.)
2. **Vertical loading** due to the weights of the attachments and, on guyed poles, the vertical component of the tensions in the guys. (In heavy and medium storm loading areas, loading includes the weight of the ice coating on the attachments.)
3. **Bending moments** due to eccentric loads or to unbalanced tensions at unguyed corners and dead ends.

For most poles:

- Transverse storm loading determines the required pole class
- Vertical loads may be controlling factors for poles carrying large cables or transformers
- Bending moments are usually controlling at unguyed corners and dead ends.

## Storm Loading

This map indicates the storm loading expected across the contiguous United States, as determined by the National Electric Safety Code (NESC). The division of the map under the labels of light, medium and heavy is determined with regard to the frequency, severity and damaging effects of ice and wind storms.



### Pole Line Design Loads

Storm Loading Area	Radial Thickness* of Ice Coating on Conductors and Messengers (In.)	Transverse Wind Pressure (Lb./Ft.*) of Projected Area	Minimum Temperature (F)
Heavy	1/2	4	0
Medium	1/4	4	15
Light	None	9	30

\* When computing transverse wind loading, ignore ice coating on poles and towers.

## Transverse Storm Loading

To determine transverse loading on the pole:

- Find the storm load of each pole attachment.
- Translate that load to an equivalent load 2 feet from the top of the pole.

## Equivalent Transverse Storm Load of Attachments

$$\text{Equivalent Load (lb/ft)} = \frac{\text{Actual Load (lb/ft)} \times \text{Height Of Attachment (ft)}}{\text{Height To 2 ft from Top Of Pole}}$$

## Transverse Storm Loads for Various Telephone Cables

**Lashed Cable:** Add diameter of cable to diameter of strand. Use this diameter in the Transverse Storm Load Chart. (Diameters of cables are covered in Document 14 under "Customer Services Engineering" in the Outside Plant Engineering Database in Lotus Notes.)

**Self-supporting cable:** Add 0.46 inch to cable diameter.

**Cable in rings:** Determine loads for strand and cable separately.

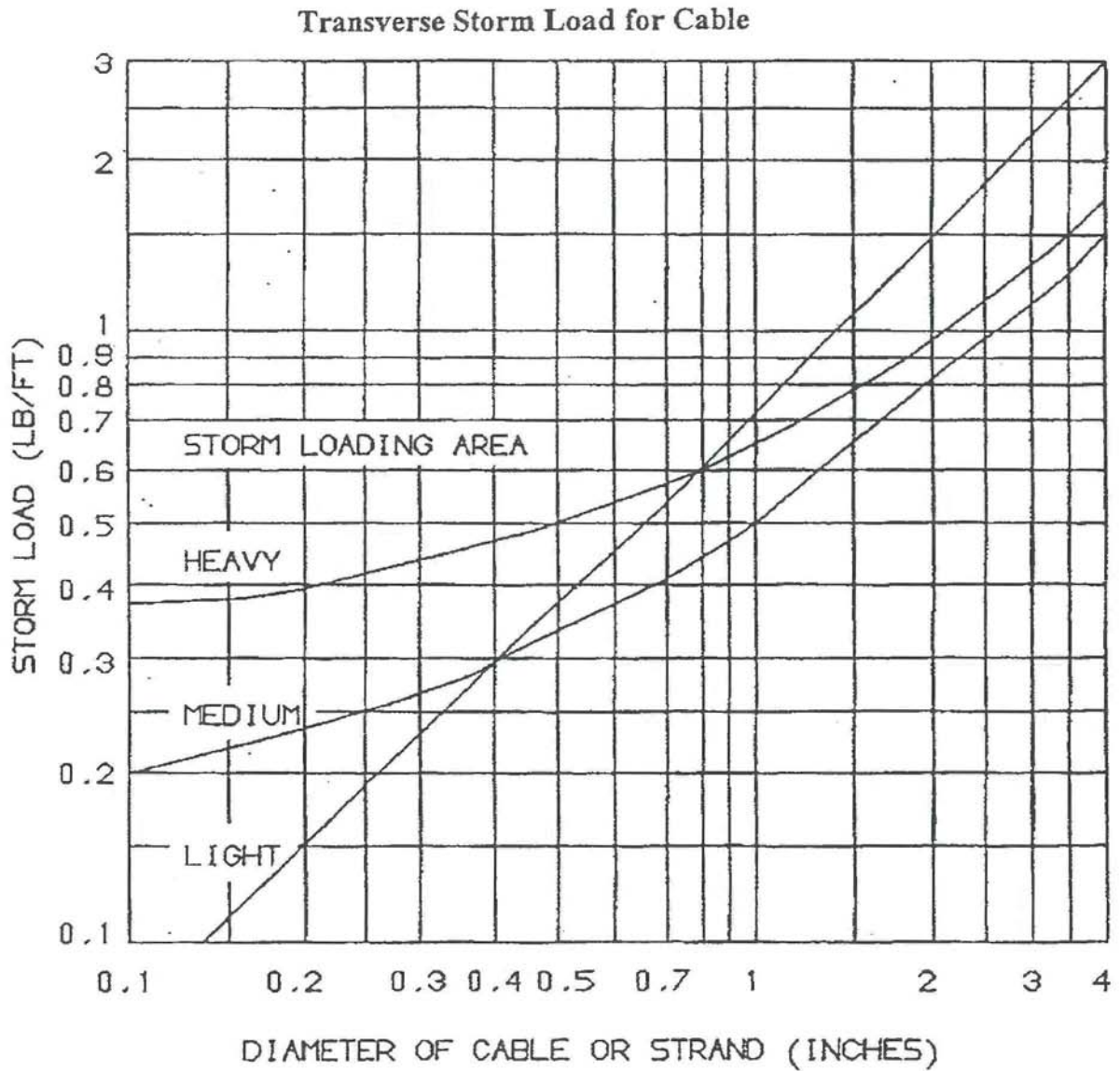
TRANSVERSE STORM LOADS FOR POWER ATTACHMENTS				
Practice 919-120-200				
Power Company Attachment	Diameter Without Ice (In.)	Storm Loading Area		
		Heavy	Medium	Light
		Transverse Storm Load (Lb/Ft)		
Covered Wire:				
#8 AWG or smaller	0.26	0.42	0.25	0.20
#6 AWG	0.32	0.44	0.27	0.24
#4 AWG	0.38	0.46	0.29	0.29
#0000 AWG	0.65	0.55	0.38	0.49
500,000 circular mils	1.11	0.70	0.54	0.83
1,000,000 circular mils	1.53	0.84	0.68	1.15
2,000,000 circular mils	2.15	1.05	0.88	1.61
Power Cable on Strand	2.56	1.19	1.01	1.92
Spacer Cables: Consider each conductor separately				
Suspension wire extending transversely between 2 poles and supporting trolley wires:				
One contact wire		2.21	2.01	1.95
Two contact wires		4.42	4.02	3.90
Four contact wires		6.62	6.03	5.85
Bracket and one trolley contact wire on one side of pole line		0.74	0.40	0.62
Brackets and two trolley contact wires, one on each side of pole line		1.10	0.60	0.70
Bracket and two trolley contact wires , over tracks on same side of pole line		1.84	1.21	1.48
Transformers, 37.5 kVA or less		0.37	0.20	0.47
Transformers, over 37.5kVA		0.37	0.40	0.70
Transverse clearance attachment for service drop above telephone attachments, per wire		0.37	0.40	0.31
Service drops, per unbalanced drop wire		0.37	0.20	0.23
Street lamp supported by mast arm (not bracket)		0.37	0.20	0.23

TRANSVERSE STORM LOADS FOR  
TELEPHONE ATTACHMENTS

Practice 919-120-200

Telephone Plant Attachment	Approx. Diameter Without Ice (In.)	Storm Loading Area		
		Heavy	Medium	Light
		Transverse Storm Load (Lb/Ft)		
Bare Open Wire: 80, 83	0.08	0.36	0.20	0.06
104, 109	0.10	0.37	0.20	0.08
128, 134	0.13	0.38	0.21	0.10
165	0.16	0.39	0.22	0.12
C Drop Wire	0.33	0.44	0.28	0.25
F Drop Wire	0.30	0.43	0.27	0.23
C, E, or F Multiple Drop Wire	0.56	0.52	0.35	0.42
C Rural Wire	0.28	0.43	0.26	0.21
Strand: 2.2M	0.17	0.39	0.22	0.13
6M	0.31	0.44	0.27	0.23
6.6M	0.25	0.42	0.25	0.19
10M	0.37	0.46	0.28	0.28
16M	0.44	0.48	0.31	0.32
25M	0.50	0.50	0.33	0.38
Cables (see explanation on next page)				
Cable Terminal - 202 pair or less		0.37	0.20	0.31
Cable Terminal - More than 202 pair		0.37	0.20	0.47
Loading Coil Case		0.37	0.20	0.09
Unbalanced Service Drops - Per drop		0.37	0.20	0.16

In heavy and medium storm loading areas, the larger diameter of ice-covered wires shields adjacent wires. Where there are more than ten wires on a crossarm, at a pin spacing not greater than 15 inches, calculate transverse storm loading using two-thirds the actual number of wires (but not less than ten) to compensate for this shielding effect. This reduction in effective number of wires does not apply at railroad crossings.



## Pole Class Based On Transverse Storm Loading

To determine pole class:

1. Find the combined equivalent storm load per foot of span length at a point 2 feet from the top of the pole for all attachments.
2. Multiply by the average length of the two adjacent spans to get the total load of attachments.
3. Using this load, tentatively determine the pole class from the "Maximum Allowable Transverse Storm Load" table (note that the load used does not include the load of the pole itself).
4. Determine the wind load on this class of pole from table "Wind Moment on Poles" and add to the result of (2) to determine the total storm load.
5. Using the result of (4), return to the "Maximum Allowable Transverse Storm Load" table and redetermine the pole class.
6. If (5) results in a different pole class, repeat (4) and (5), using the pole class determined in (5).

MAXIMUM ALLOWABLE TRANSVERSE STORM LOAD									
Class of Line	Class of Pole								
	1	2	3	4	5	6	7	9	10
Transverse storm load (lb) two feet below top of pole									
AA or JB	1125	925	750	600	475	375	300	185	93
A	1800	1480	1200	960	760	600	480	296	148
JC	2250	1850	1500	1200	950	750	600	370	185
B	2700	2220	1800	1440	1140	900	720	444	222
C	3150	2590	2100	1680	1330	1050	840	518	259
R	3600	2960	2400	1920	1520	1200	960	592	296
Note: 8 is not a standard Class of Pole									

WIND MOMENT ON POLES [Maximum Equivalent Load 2 Feet From Top (Lb)]										
Practice 919-120-700										
Timber Species	Length of Pole (Ft)	Class of Pole								
		1	2	3	4	5	6	7	9	10
		Heavy and Medium Storm Loading Access								
WC, WP, JP, NP, or LP	20	31	29	27	25	23	21	19	17	16
	25	38	36	33	31	28	26	24	21	20
	30	47	44	41	38	35	32	29	27	
	35	56	53	50	46	42	39	35		
	40	67	63	59	55	50	46	42		
	45	79	74	69	64	59	54	49		
	50	87	82	77	71	65	60	54		
SP, DF, or WL	20	30	28	26	24	22	20	18	16	155
	25	37	34	32	30	27	25	23	20	19
	30	46	43	40	37	34	31	28	25	
	35	55	51	48	44	40	37	34		
	40	65	61	57	52	48	44	40		
	45	75	71	66	61	56	52	47		
	50	84	79	73	68	64	57	52		

## Determine Pole Class Based on Transverse Storm Loading

Example:

- Class AA line in the heavy storm loading area
- 35-foot southern pine pole
- 180- and 220-foot adjacent spans
- BKTA-900 cable on poles

The process:

1. Find the storm load using the diameter of the cable and the Traverse Storm Load Graph to be 1.25 lb./ft.
2. Total load of attachments:  $1.25 \frac{(180+220)}{2} = 250 \text{ lb.}$
3. Table "Maximum Allowable Transverse Storm Load" above indicates class 7 pole.
4. Wind Load for a 35 foot SP, class 7 pole is 34 lbs. per the table Table "Wind Moment on Poles."  
The Total Storm Load =  $34 + 250 = 284 \text{ lb.}$
5. For a 284-lb load, AA class of line, table "Maximum Allowable Transverse Storm Load" indicates a class 7 pole.

## Vertical Loading

- When the class of pole is being determined, the vertical load on an unguyed pole due to the weight of its attachments and ice is usually not significant compared to the transverse storm loading.
- Vertical loading is usually the controlling factor in determining the class of guyed poles.
- The total vertical load depends on the number and size of guys and their lead-to-height ratios.

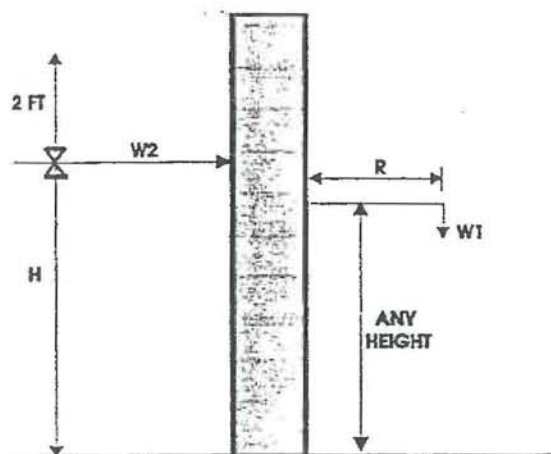
CLASS OF GUYED POLES OR STUBS FOR VERTICAL LOADING								
Practice 919-120-700								
Lead/ Height Ratio	Length of Pole (Ft)	Maximum Sum of Guys						
		6.6M	12M	18M	25M	30M	40M	50M
		Class of Pole						
Less Than 1	20	10	9	9	7	6	6	5
	25	9	9	7	6	6	5	5
	30	9	7	7	6	5	5	4
	35	7	7	6	5	5	4	3
	40	7	7	6	5	4	4	3
	45	7	6	5	4	4	3	3
	50	7	6	5	4	4	3	2
	55	6	6	5	4	3	3	2
	60	6	5	4	4	3	2	2
	65	5	5	4	3	3	2	1
	70	5	5	4	3	2	2	1
1 or Greater	20	10	9	9	7	7	6	6
	25	9	9	9	7	6	5	5
	30	9	9	7	7	6	5	5
	35	7	7	7	6	5	5	4
	40	7	7	6	5	5	4	4
	45	7	7	6	5	5	4	3
	50	7	7	6	5	4	3	3
	55	6	6	5	4	4	3	3
	60	6	6	5	4	4	3	2
	65	5	5	5	4	3	2	2
	70	5	5	4	4	3	2	2

## Bending Due To Eccentric Loads

A bending moment is caused by eccentric loads, such as a cable on an extension arm or a transformer mounted at right angles to the direction of the line.

Conversion from eccentric load to equivalent transverse load 2 feet below pole top is computed as follows:

$$\frac{\text{Distance from pole to the Eccentric Load (ft.)} \times \text{Eccentric Load}}{\text{Distance from the ground to 2' below pole top (ft.)}} = \text{Equivalent Transverse Load}$$



- $W_1$  = Eccentric Load
- $R$  = Distance from Pole
- $H$  = Distance from Ground to 2 Feet Below Top of Pole
- $W_2$  = Equivalent Transverse Load 2 Feet from Top
- $W_2 = \frac{RW_1}{H}$

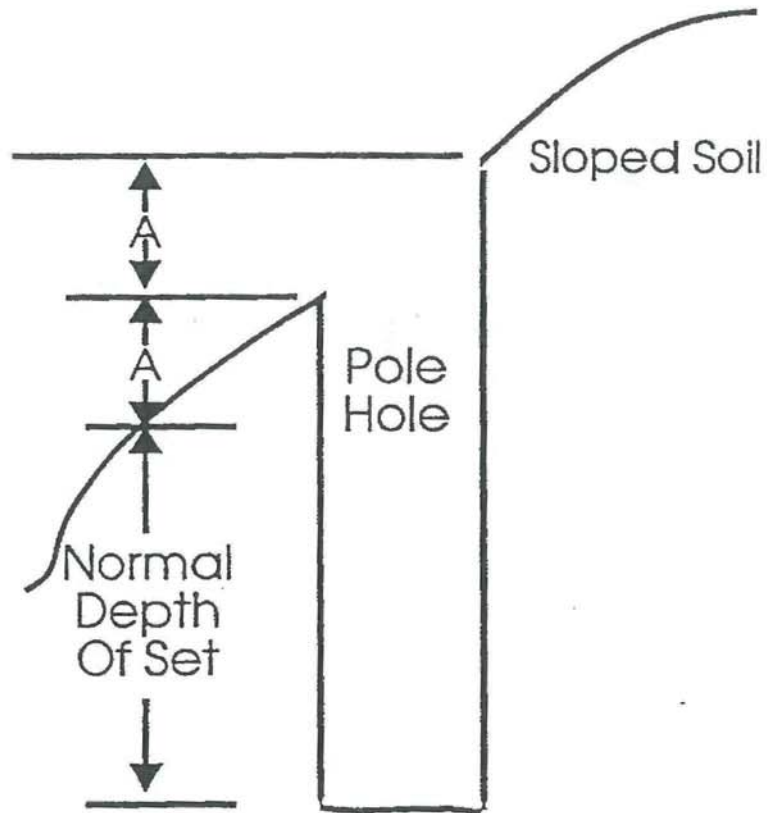
## Recommendations:

- When eccentric loads are present, use one class larger pole than the minimum required.
- Guy the poles that have unusually heavy eccentric loads.

## Depth Of Setting A Pole

Length of Pole (Ft.)	Depth of Set (Ft.)	
	Firm Earth	Solid Rock
20	4	3
25	5	3
30	5-1/2	3-1/2
35-40	6	4
45	6-1/2	4-1/2
50	7	4-1/2
55	7-1/2	5
60	8	5
65	8-1/2	6
70	9	6
75	9-1/2	6
80	10	7
85	10-1/2	7
90-100	11	7
105-125	12	8

In sloping ground, the depth of set should be increased by an amount equal to the difference in the slope from one side of the pole to the other.



**Determining Pole Class And Depth For Unguyed Corner And Dead-End Poles**

Whenever possible, corner and dead-end poles should be guyed or braced. Where this is not practical, determine the pole class based on (1) storm loading, and (2) everyday unbalanced tensions, and use the larger class. Storm loading has two components:

- Transverse loading on the pole and its attachments
- Unbalanced storm-loaded tensions in the wires or strands resulting from the change in direction of pull.

These two components have different design safety factors which must be applied to each component separately before they are combined.

**Design Safety Factors**

Pole Line Classification	Safety Factor Transverse Loading	Safety Factor Unbalance Tensions
AA or JB	4.0	2.0
A	2.5	1.33
JC	2.0	1.33
B	1.67	1.33
C	1.43	1.0
R	1.25	1.0

## Determining Transverse Loading

Transverse storm loading is expressed in equivalent load (in pounds) 2 feet from the top of the pole, or at ground line:

$$\text{Equivalent Load (lb)} = \frac{(\text{Unbalanced Tension}) \times (\text{Height Of Attachment})}{(\text{Distance From Ground To 2 Feet From Top})}$$

## Unbalanced Tension

Now we can look at the conversion. Convert each unbalanced tension to equivalent load 2 feet from the top of the pole by:

$$\text{Unbalanced Tension (lb)} = \frac{[\text{Pull (ft)}] \times [\text{Line Tension (lb)}]}{50}$$

To determine the pole class based on storm loading:

1. Compute total equivalent load 2 feet from top of pole due to transverse load of all attachments and multiply by the appropriate safety factor from the preceding safety factor table.
2. Compute total equivalent load 2 feet from top of pole due to unbalanced tensions of all wires and cables and multiply by appropriate safety factor from the preceding safety factor table.
3. Add the results of (1) and (2) and determine the pole class from the earlier Characteristics Of Poles table.